

ABSTRACT

**[0035]** An apparatus for controlling a temperature of a substrate during semiconductor substrate processing including a semiconductor substrate processing chamber and a substrate support disposed in the chamber. The substrate support includes heater electrode adapted for connection to a power source and disposed within the substrate support, and a meter coupled to the heater electrode for measuring resistivity of the heater electrode as an indicator of the temperature of the heater electrode. A controller is also coupled to the meter and the power source wherein the controller regulates power distribution from the power source to the heater electrode based upon a temperature of the heater electrode, where the temperature is determined from a measured resistivity of the heater electrode.